THERMOANALYTICAL QUALITY EXAMINATION OF CONFECTIONERY ROW MATERIALS AND PRODUCTS

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Abstract

In today's modern quality assurance systems (GMP, HACCP) is essential for a complete examination of the raw materials to a finished products, documentation of processes. The systems aim at quality assurance and harmonious cooperation of quality control, eliminating critical points. Solid base materials have different crystallization, re-crystallization, polymorph, can have melting point characteristics, which can be used to identify specific materials, to detect possible impurities. Another such feature is the moisture content of the material, and crystal water content. During production may undergo up to several hundred degrees of temperature change, which may cause unwanted transformations, it is important to define these parameters before the process is started. This method is used in thermal analysis, which is already being applied in several areas.

The examination has two components; analysis of various sugar-containing hard candy mention, whose TG-DSC was measured at Faculty of Pharmacy, University of Szeged with a Mottler Toledo TGA / DSC 1, which was operated by Géza Regdon PhD associate professor. The analysis of the measured data was performed by software called STARe Thermal Analysis. On the DSC curve of 25%, 50%, 75% candy around 60 °C, an endothermic peak appears, which is probably due to the interaction of substances. They may report the initial inversion of sugar, but may also mean the melting of the crystal structure, the candy structure was only partially crystalline. The peak appears as a larger area in the case of higher sugar content. This peak can be used to identify such a term hard candy syrup and sucrose, or the parameters of the peaks after recording a calibration line, even an unknown sugar content can be accurately determined.

In the confectionery industry, until today, the thermodynamic characteristics of hard candy are empirically determined. The method presented in this paper provides tangible results in making production more smooth. A similar character DSC curves provide opportunities for contamination or to exclude an undesirable sugar inversion. It is possible to add additional components to the melting point, to examine the effects on it decomposition temperature.

Key words: thermoanalytical quality, confectionery, crystallization, endothermic peak